

## **Nursing Facility MDS Record Selection and Case Mix Calculation SFY 2006, Quarter 2 (October 2005)**

The following is a brief overview of the steps involved in calculating the case mix for each NF beginning in State FY2006 Q2:

1. Obtain an updated list of Medicaid NF residents with an add-on rate from the Resident Assessment team. Import new records into the “AddOnRateRecipients” table.
2. Make a copy of the previous quarter’s case mix calculation database for use in the new period – rename it to fit the new period.
3. Clear prior period data tables in the new (copied) DB.
  - a. MdsAllData
  - b. MdsAllData\_Excluded\_IntensiveSkilled
  - c. MdsAllData\_ExcludedAssessments\_BadData
4. Append MDS data into the “MdsAllData” table and Update.
  - a. Append Discharge records to the “MdsAllData” table.
  - b. Append Assessment records to the “MdsAllData” table.
  - c. Update corrected assessments to Null values – except Assessment Internal ID.
    - i. This will remove assessments that have subsequently been corrected from the table so they are not counted twice.
  - d. Update Intensive Skilled assessment records to Null values – except Assessment Internal ID.
    - i. Remove records from the “MdsAllData” table if the assessment occurs while the person is receiving an “ISC” add-on rate amount. Append the removed records to the “MdsAllData\_Excluded\_IntensiveSkilled” table for reference.
5. Calculate the RUG days by entering the “period of interest” dates on the MS Access form and clicking the calculate days button.
  - a. Calculate Days button – This button will calculate the individual RUG days by executing Visual Basic code (see Appendix A) for the period of interest against the “qryGetData” query which contains the following data:
    - i. FacilityMedicaidID (Sort1)
    - ii. SSN (Sort2)
    1. Filter:

- a. Is Not Null And
  - b. Not Like "-\*" And
  - c. Not Like " " And
  - d. Not Like " "
- iii. AdmitDate
- iv. AssessmentDate (Sort3)
  - 1. This is a calculated field and is determined as follows:
    - a. IIf(IsNull(MdsAllData.AssessmentDate), MdsAllData.DischargeDate, MdsAllData.AssessmentDate)
- v. DischargeDate
- vi. StateCalculatedMedicaidRUG
- vii. AssessmentInternalID (Sort4)
- viii. MedicareCodeQualifier
- ix. ResidentMedicaidID
- x. Caid – True/False
  - 1. This is a calculated field and is determined as follows:
    - a. IIf((MdsAllData!MedicareCodeQualifier="6" Or MdsAllData!MedicareCodeQualifier Like " "), (IIf((Left(MdsAllData!ResidentMedicaidID,1)="+" Or Len(MdsAllData!ResidentMedicaidID)=10), True, False)), False)
- b. The results of this VB script are written to the “tblResults” table.

6. Validate that no resident has more total days than is possible in the period of interest. If a resident is found to have more days, then remove that residents data from the “MdsAllData” table and append it to the “MdsAllData\_ExcludedAssessments\_BadData” table and rerun the case mix calculation as noted in #4 above.

7. Sum the RUG days by RUG as follows:

- a. FacilityName (Group By)
- b. FacilityMedicaidID (Group By)
- c. RUG (Group By)
- d. Weight (Group By)
- e. Days (Sum)
- f. WgtXDays: [Weight]\*[Days] (Expression)

8. Sum the RUG days by facility as follows:

- |   |              |
|---|--------------|
| a. FacilityMedicaidID                           | (Group By)   |
| b. FacilityName                                 | (Group By)   |
| c. TotalDays: Sum(tblResults_DaysRugs_Sum!Days) | (Expression) |
| d. SumWgtXDays: WgtXDays                        | (Sum)        |
| e. CaseMix: [SumWgtXDays]/[TotalDays]           | (Expression) |

**Notes:**

- This version of the Case Mix calculation uses non-Medicaid assessment data only for a prior assessment/discharge date(s) and/or the prior assessment RUG score.
- MDS Section AA, question 8b (Codes for assessments required for Medicare PPS or the State) – Any value other than “6” or Null (blank or a space) is a Medicare assessment and would not be included in a Medicaid case mix calculation.
- ResidentMedicaidID – In addition to AA8B, this field is used to help in determining if a resident is Medicaid eligible.

Minimum Data Set (MDS) – Version 2.0 instructions for Section AA, question 7 states the following: “Medicaid No. [“+” if pending, “N” if not a Medicaid recipient].” There is a further note, via asterisk, that the field is a key item for computerized resident tracking.

We have noted quite a variety of responses in this field that do not follow the instructions for data entry. (Examples: APPLY, D, N/A, NONE, NON3E, P, PENDING, ZHC...) We have also noted many instances where the SSN was used in the ResidentMedicaidID field. Going forward, new assessment records will not be added to our DB where

- AA8B is other than “6” or Null **and**
  - ResidentMedicaidID is other than a 10-digit numeric or a “+” (the quotation marks would not actually be included in the field).
- Also refer to 5.a.x.1.a above for the syntax in determining whether an assessment is considered a Medicaid record.

## RUG Calculation Translation:

Is it a new person?

No –

Is there an admit date?

Yes –

Is the admit date later than the last assessment date?

Yes –

Is there a current RUG?

Yes – Use the current RUG

No – Use a default value

No –

Is there a previous RUG?

Yes – Use the previous RUG

No – Use a default value

No –

Is there a previous RUG?

Yes – Use the previous RUG

No – Use a default value

Yes –

Is there a current RUG?

Yes – Use the current RUG

No – Use a default value

## Appendix A – MDS Case Mix Calculation Syntax

- Use Medicaid records and prior – non-Medicaid payor – records as needed for RUG
- Use the maximum date between Admit and the last Assessment/Discharge date

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**This routine writes the data to the results table.**

```
Private Sub WriteResult(ByVal strFacility_toWrite As String, ByVal strSSN_toWrite As String, ByVal dtmBegin As Date, ByVal dtmEnd As Date, ByVal intDays As Integer,
ByVal strRUG_toWrite As String, ByVal strAssessmentID_toWrite As String)
    DoCmd.RunSQL "INSERT INTO tblResults(FacilityMedicaidID, SSN, dtmBegin, dtmEnd, intDays, strRUG, strAssessmentId)VALUES('" & strFacility_toWrite & "', '" &
strSSN_toWrite & "', #" & dtmBegin & "#, #" & dtmEnd & "#, " & intDays & ", '" & strRUG_toWrite & "', '" & strAssessmentID_toWrite & "')"
End Sub
```

---

**This function determines the appropriate RUG to use.**

```
Private Function DetermineRUG(ByVal blnNew As Boolean, ByVal dtmAdmit As Date, ByVal dtmAssessmentLast As Date, ByVal strRUG As String, ByVal strRUGLast As
String, ByVal strDefault As String) As String
    If Not blnNew Then
        If Not IsNull(dtmAdmit) Then
            If dtmAdmit > dtmAssessmentLast Then
                If strRUG <> "" Then
                    DetermineRUG = strRUG
                Else
                    DetermineRUG = strDefault
                End If
            Else
                If strRUGLast <> "" Then
                    DetermineRUG = strRUGLast
                Else
                    DetermineRUG = strDefault
                End If
            End If
        Else
            If strRUGLast <> "" Then
                DetermineRUG = strRUGLast
            Else
                DetermineRUG = strDefault
            End If
        End If
    End If
End Function
```

```

        End If
    End If
Else
    If strRUG <> "" Then
        DetermineRUG = strRUG
    Else
        DetermineRUG = strDefault
    End If
End If
End Function

```

---

**This routine calculates the case mix days, etc.**

```

Private Sub Command8_Click()
Dim rs, rs2 As ADODB.Recordset
Dim strFacility, strFacilityLast, strSSN, strSSNLast, strRUG, strRUGLast, strRUGFinal, strAssessmentId, strAssessmentIdLast As String
Dim dtmAssessment, dtmAssessmentLast, dtmAdmit, dtmBegin, dtmEnd, dtmDischarge, dtmDischargeLast As Date
Dim intDays As Integer
Dim blnCaid, blnCaidLast, blnClose, blnWrite, blnNew As Boolean
Set rs = New ADODB.Recordset
Set rs2 = New ADODB.Recordset
rs.Open "qryGetData", CurrentProject.AccessConnection, adOpenForwardOnly, adLockReadOnly
DoCmd.SetWarnings (WarningsOff)
DoCmd.RunSQL "DELETE FROM tblResults"
DoCmd.RunSQL "DELETE FROM tblAnomalies"
strRUGLast = ""
While Not rs.EOF
    strFacility = rs.Fields("FacilityMedicaidID")
    strSSN = rs.Fields("SSN")
    dtmAdmit = rs.Fields("AdmitDate")
    If IsNull(dtmAdmit) Then
        dtmAdmit = #12:00:00 AM#
    End If
    dtmAssessment = rs.Fields("AssessmentDate")
    dtmDischarge = rs.Fields("DischargeDate")
    strRUG = rs.Fields("StateCalculatedMedicaidRUG")
    If IsNull(strRUG) Then
        strRUG = ""
    End If
    strAssessmentId = rs.Fields("AssessmentInternalID")
    blnCaid = CBool(rs.Fields("Caid"))

```

```

'Is this a new person-facility pair?
If strFacility = strFacilityLast And strSSN = strSSNLast Then
    blnNew = False
Else
    blnNew = True
End If

'did the assessment occur in the middle of the period? If so, close out the period
If blnNew And blnClose And dtmDischargeLast <> #12:00:00 AM# Then
    dtmBegin = dtmAssessmentLast
    dtmEnd = Me.tbPeriodEnd.Value
    intDays = DateDiff("D", dtmBegin, dtmEnd)
    strFacility_toWrite = strFacilityLast
    strSSN_toWrite = strSSNLast
    strRUG_toWrite = strRUGLast
    strAssessmentID_toWrite = strAssessmentID_Last
    Call WriteResult(strFacility_toWrite, strSSN_toWrite, dtmBegin, dtmEnd, intDays, strRUG_toWrite, strAssessmentID_toWrite)
End If
blnClose = False

'Is this a Medicaid Record?

If blnCaid Then
    blnWrite = False
    'Is this the same person-facility pair?
    If Not blnNew Then
        'Is there an Admit Date?
        If dtmAdmit <> #12:00:00 AM# Then
            If dtmAdmit < dtmAssessmentLast Then
                dtmAdmit = dtmAssessmentLast
            End If
            'Is the Admit Date in our range of interest?
            If dtmAdmit >= Me.tbPeriodBegin.Value And dtmAdmit <= Me.tbPeriodEnd.Value Then
                'Is the Assessment Date in our range of interest?
                If dtmAssessment >= Me.tbPeriodBegin.Value And dtmAssessment <= Me.tbPeriodEnd.Value Then
                    'First(N)Admit(Y)AdmitInRange(Y)AssessInRange(Y)
                    dtmBegin = dtmAdmit
                    dtmEnd = dtmAssessment
                    intDays = DateDiff("D", dtmBegin, dtmEnd)
                End If
            End If
        End If
    End If
End If

```

```

    strFacility_toWrite = strFacility
    strSSN_toWrite = strSSN
    strRUG_toWrite = DetermineRUG(blnNew, dtmAdmit, dtmAssessmentLast, strRUG, strRUGLast, "NYYY")
    blnWrite = True
    'End of Line
ElseIf dtmAssessment > Me.tbPeriodEnd.Value Then
    'First(N)Admit(Y)AdmitInRange(Y)AssessInRange(N)
    dtmBegin = dtmAdmit
    dtmEnd = Me.tbPeriodEnd.Value
    intDays = DateDiff("D", dtmBegin, dtmEnd)
    strFacility_toWrite = strFacility
    strSSN_toWrite = strSSN
    strRUG_toWrite = DetermineRUG(blnNew, dtmAdmit, dtmAssessmentLast, strRUG, strRUGLast, "NYYN")
    blnWrite = True
    'End of Line
End If
ElseIf dtmAdmit < Me.tbPeriodBegin.Value Then
    'Is the Assessment Date in our range of interest?
    If dtmAssessment >= Me.tbPeriodBegin.Value And dtmAssessment <= Me.tbPeriodEnd.Value Then
        'First(N)Admit(Y)AdmitInRange(N)AssessInRange(Y)
        dtmBegin = Me.tbPeriodBegin.Value
        dtmEnd = dtmAssessment
        intDays = DateDiff("D", dtmBegin, dtmEnd)
        strFacility_toWrite = strFacility
        strSSN_toWrite = strSSN
        strRUG_toWrite = DetermineRUG(blnNew, dtmAdmit, dtmAssessmentLast, strRUG, strRUGLast, "NYNY")
        blnWrite = True
        'End of Line
    ElseIf dtmAssessment > Me.tbPeriodEnd.Value Then
        'First(N)Admit(Y)AdmitInRange(Y)AssessInRange(N)
        dtmBegin = Me.tbPeriodBegin.Value
        dtmEnd = Me.tbPeriodEnd.Value
        intDays = DateDiff("D", dtmBegin, dtmEnd)
        strFacility_toWrite = strFacility
        strSSN_toWrite = strSSN
        strRUG_toWrite = DetermineRUG(blnNew, dtmAdmit, dtmAssessmentLast, strRUG, strRUGLast, "NYYN")
        blnWrite = True
        'End of Line
    End If
End If
Else
    'Assign the Admit Date to the Last Assessment Date

```



```

dtmAdmit = dtmAssessmentLast
'Is the Admit Date in our range of interest?
If dtmAdmit >= Me.tbPeriodBegin.Value And dtmAdmit <= Me.tbPeriodEnd.Value Then
    'Is the Assessment Date in our range of interest?
    If dtmAssessment >= Me.tbPeriodBegin.Value And dtmAssessment <= Me.tbPeriodEnd.Value Then
        'First(N)Admit(N)AdmitInRange(Y)AssessInRange(Y)
        dtmBegin = dtmAdmit
        dtmEnd = dtmAssessment
        intDays = DateDiff("D", dtmBegin, dtmEnd)
        strFacility_toWrite = strFacility
        strSSN_toWrite = strSSN
        strRUG_toWrite = DetermineRUG(blnNew, dtmAdmit, dtmAssessmentLast, strRUG, strRUGLast, "NNYY")
        blnWrite = True
        'End of Line
    ElseIf dtmAssessment > Me.tbPeriodEnd.Value Then
        'First(N)Admit(N)AdmitInRange(Y)AssessInRange(N)
        dtmBegin = dtmAdmit
        dtmEnd = Me.tbPeriodEnd.Value
        intDays = DateDiff("D", dtmBegin, dtmEnd)
        strFacility_toWrite = strFacility
        strSSN_toWrite = strSSN
        strRUG_toWrite = DetermineRUG(blnNew, dtmAdmit, dtmAssessmentLast, strRUG, strRUGLast, "NYYN")
        blnWrite = True
        'End of Line
    End If
ElseIf dtmAdmit < Me.tbPeriodBegin.Value Then
    'Is the Assessment Date in our range of interest?
    If dtmAssessment >= Me.tbPeriodBegin.Value And dtmAssessment <= Me.tbPeriodEnd.Value Then
        'First(N)Admit(N)AdmitInRange(N)AssessInRange(Y)
        dtmBegin = Me.tbPeriodBegin.Value
        dtmEnd = dtmAssessment
        intDays = DateDiff("D", dtmBegin, dtmEnd)
        strFacility_toWrite = strFacility
        strSSN_toWrite = strSSN
        strRUG_toWrite = DetermineRUG(blnNew, dtmAdmit, dtmAssessmentLast, strRUG, strRUGLast, "NNNY")
        blnWrite = True
        'End of Line
    ElseIf dtmAssessment > Me.tbPeriodEnd.Value Then
        'First(N)Admit(N)AdmitInRange(N)AssessInRange(N)
        dtmBegin = Me.tbPeriodBegin.Value
        dtmEnd = Me.tbPeriodEnd.Value
        intDays = DateDiff("D", dtmBegin, dtmEnd)

```

```

        strFacility_toWrite = strFacility
        strSSN_toWrite = strSSN
        strRUG_toWrite = DetermineRUG(blnNew, dtmAdmit, dtmAssessmentLast, strRUG, strRUGLast, "NNNN")
        blnWrite = True
        'End of Line
    End If
End If
End If
Else
    'Is there an Admit Date?
    If dtmAdmit <> #12:00:00 AM# Then
        'Is the Admit Date in our range of interest?
        If dtmAdmit >= Me.tbPeriodBegin.Value And dtmAdmit <= Me.tbPeriodEnd.Value Then
            'Is the Assessment Date in our range of interest?
            If dtmAssessment >= Me.tbPeriodBegin.Value And dtmAssessment <= Me.tbPeriodEnd.Value Then
                'First(Y)Admit(Y)AdmitInRange(Y)AssessInRange(Y)
                dtmBegin = dtmAdmit
                dtmEnd = dtmAssessment
                intDays = DateDiff("D", dtmBegin, dtmEnd)
                strFacility_toWrite = strFacility
                strSSN_toWrite = strSSN
                strRUG_toWrite = DetermineRUG(blnNew, dtmAdmit, dtmAssessmentLast, strRUG, strRUGLast, "YYYY")
                blnWrite = True
                'End of Line
            ElseIf dtmAssessment > Me.tbPeriodEnd.Value Then
                'First(Y)Admit(Y)AdmitInRange(Y)AssessInRange(N)
                dtmBegin = dtmAdmit
                dtmEnd = Me.tbPeriodEnd.Value
                intDays = DateDiff("D", dtmBegin, dtmEnd)
                strFacility_toWrite = strFacility
                strSSN_toWrite = strSSN
                strRUG_toWrite = DetermineRUG(blnNew, dtmAdmit, dtmAssessmentLast, strRUG, strRUGLast, "YYYN")
                blnWrite = True
                'End of Line
            End If
        ElseIf dtmAdmit < Me.tbPeriodBegin.Value Then
            'Is the Assessment Date in our range of interest?
            If dtmAssessment >= Me.tbPeriodBegin.Value And dtmAssessment <= Me.tbPeriodEnd.Value Then
                'First(Y)Admit(Y)AdmitInRange(N)AssessInRange(Y)
                dtmBegin = Me.tbPeriodBegin.Value
                dtmEnd = dtmAssessment
                intDays = DateDiff("D", dtmBegin, dtmEnd)
            End If
        End If
    End If

```

```

    strFacility_toWrite = strFacility
    strSSN_toWrite = strSSN
    strRUG_toWrite = DetermineRUG(blnNew, dtmAdmit, dtmAssessmentLast, strRUG, strRUGLast, "YYNY")
    blnWrite = True
    'End of Line
ElseIf dtmAssessment > Me.tbPeriodEnd.Value Then
    'First(Y)Admit(Y)AdmitInRange(N)AssessInRange(N)
    dtmBegin = Me.tbPeriodBegin.Value
    dtmEnd = Me.tbPeriodEnd.Value
    intDays = DateDiff("D", dtmBegin, dtmEnd)
    strFacility_toWrite = strFacility
    strSSN_toWrite = strSSN
    strRUG_toWrite = DetermineRUG(blnNew, dtmAdmit, dtmAssessmentLast, strRUG, strRUGLast, "YYNN")
    blnWrite = True
    'End of Line
End If
End If
Else
    'Is the Assessment Date in our range of interest?
    If dtmAssessment >= Me.tbPeriodBegin.Value And dtmAssessment <= Me.tbPeriodEnd.Value Then
        'First(Y)Admit(N)AdmitInRange(N)AssessInRange(Y)
        dtmBegin = Me.tbPeriodBegin.Value
        dtmEnd = dtmAssessment
        intDays = DateDiff("D", dtmBegin, dtmEnd)
        strFacility_toWrite = strFacility
        strSSN_toWrite = strSSN
        strRUG_toWrite = DetermineRUG(blnNew, dtmAdmit, dtmAssessmentLast, strRUG, strRUGLast, "YNNY")
        blnWrite = True
        'End of Line
    ElseIf dtmAssessment > Me.tbPeriodEnd.Value Then
        'First(Y)Admit(N)AdmitInRange(N)AssessInRange(N)
        dtmBegin = Me.tbPeriodEnd.Value
        dtmEnd = Me.tbPeriodEnd.Value
        intDays = 0
        strFacility_toWrite = strFacility
        strSSN_toWrite = strSSN
        strRUG_toWrite = DetermineRUG(blnNew, dtmAdmit, dtmAssessmentLast, strRUG, strRUGLast, "YNNN")
        blnWrite = True
        'End of Line
    End If
End If
End If

```

```

    If blnWrite Then
        strAssessmentID_toWrite = strAssessmentId
        Call WriteResult(strFacility_toWrite, strSSN_toWrite, dtmBegin, dtmEnd, intDays, strRUG_toWrite, strAssessmentID_toWrite)
        blnWrite = False
    End If
End If
strFacilityLast = strFacility
strSSNLast = strSSN
strAssessIdLast = strAssessId
blnCaidLast = blnCaid
strRUGLast = strRUG
dtmAssessmentLast = dtmAssessment
If Not IsNull(dtmDischarge) Then
    dtmDischargeLast = dtmDischarge
Else
    dtmDischargeLast = #12:00:00 AM#
End If
rs.MoveNext
Wend
rs.Close

'Finish with the last record
If blnClose And dtmDischarge <> #12:00:00 AM# Then
    dtmBegin = dtmAssessmentLast
    dtmEnd = Me.tbPeriodEnd.Value
    intDays = DateDiff("D", dtmBegin, dtmEnd)
    strFacility_toWrite = strFacilityLast
    strSSN_toWrite = strSSNLast
    strRUG_toWrite = strRUGLast
    strAssessmentID_toWrite = strAssessmentID_Last
    Call WriteResult(strFacility_toWrite, strSSN_toWrite, dtmBegin, dtmEnd, intDays, strRUG_toWrite, strAssessmentID_toWrite)
End If

Set rs = Nothing
Set rs2 = Nothing

DoCmd.SetWarnings (WarningsOn)
End Sub

```